Receptor-Effects Coupling: A Practical Approach; Edited by E.C. Hulme; IRL; Oxford, 1990; xviii + 224 pages; £19.50

The book, 'Receptor-Effector Coupling, which has recently appeared in the 'Practical Approach' series from IRL Press and has been edited by E.C. Hulme, will be welcomed by both basic research scientists and people interested in using biological mechanisms as targets for developing new anti-cancer drugs. As is typical of the series, it is written as a clear series of practical guides on how to carry out studies on various aspects of receptor function.

The first chapter, by Sternweis and Pang, gives a straightforward description of the G proteins and their subunits. The book then follows on with a logical description of receptor-G protein complexes in solution, by Poyner. Studies on different tyrosine kinases are becoming of great interest to people working in many areas of control of growth and metabolism and the chapter by Cerione will be of particular interest to those who want to get involved in the study of growth factor receptor tyrosine kinase interactions. The chapter on measurement and control of intracellular calcium levels, by Alison Gurney, is typical of the book in that it not only provides very adequate practical instructions for experiments but also gives a thorough background for workers who may be new to the field.

The chapter by Mahadevan and Bell gives a very useful description of various methods of assaying tyrosine kinase activity, both those using radioactivity and those using anti-phosphotyrosine antibodies. This chapter is essential reading for anyone who is about to get involved in this particular field.

The final chapter, by the Editor himself, on receptor binding studies; a brief outline, is a very appropriate way of finishing the book. It contains a lot of useful background information together with some valuable tips. For example, Dr. Hulme points out that 'the ability of the Scatchard plot to lead the eye on is notorious and may entice one to make a large extrapolation from a limited linear segment of the plot to yield an apparent receptor number value'. This is a mistake which has been made by a great many people who have become involved in receptor binding studies and it reflects the approach by Dr Hulme for the whole chapter. I would strongly recommend that all people involved in any type of receptor binding study should read this chapter very thoroughly.

Overall Dr. Hulme has edited this book in a very clear manner such that the various chapters, although written by different authors, appear in very similar style. This is a most important job for editors of such practical volumes and makes the reading of the book much more easy. I am sure that a great many laboratories will buy this book not just for the intellectual content but for the great amount of very useful practical advice given. At £19.50, it is, typically of the practical approach series, extremely good value for money.

Robin E. Leake

Membrane Technology (Serono Symposium Publications, Volume 64); Edited by Roberto Verna; Raven Press; New York, 1991; xii + 153 pages; $ 87.00

This small volume contains 14 papers presented at the International Symposium held in Rome in June 1989 with the objective of exploring the applications of membrane technology to diagnostics and therapeutics. In reality the papers contain few direct applications of membrane technology to either diagnostics or therapeutics, but describe a range of techniques used in the scientific study of membranology, which to varying degrees help us to better understand membrane processes in vivo. One hopes that such understanding forms the basis of future developments in the diagnosis and treatment of disease. All the papers are concise and well presented and in this review I will draw attention to a few of the topics covered with particular reference to new developments, bearing in mind the meeting was held over two years ago.

The rapid growth in molecular biology has enabled transport and receptor proteins to be engineered and the strategy of this approach is usefully reviewed by Montal with particular reference to sodium channel proteins and the nicotine acetylcholine receptor. In a second paper by Montal (with Gambale) the effect of lipid environment on gramicidin A and the tetanus toxin channel is briefly considered.

A new patch-clamp technique is described by Rizzo et al. with which it is possible to excise 3–8 μm spheres of cell membranes ('blebs') from the soma of cultured mammalian neurons suitable for voltage clamp experiments. The membrane area of the blebs is large enough to make macroscopic membrane current measurements to analyse membrane channels which are not possible using the whole-cell configuration. The theme of ion channels continues in the papers of Caratsch and Eusebi who discuss the regulation of peripheric synaptic transmission by the C-kinase system, by Arcangeli et al. who discuss ion channels in cancer cells, and by Garay et al. who investigate the role of ion transport in the initiation of atherosclerosis. There is a well referenced review on phosphoinositide signalling by Parker.

Multidrug resistance is represented by a paper by Gottesman and Pastan who discuss the cloning of a gene (MDR1) which encodes for a multidrug transport protein in cells (human KB, a subclone of HeLa cells) resistant to either doxorubicin, colchicine or vinblastine. Circumstantial evidence implicating a 170,000 molecular-weight glycoprotein (P-glycoprotein) as the multidrug transporter and the possible function of the transporter in normal and cancerous tissue are discussed. A multidrug resistance gene is used by Konig et al. to amplify expression of the T-cell surface glycoprotein CD4 in Chinese hamster ovary cells, the large amounts of glycoprotein produced enabled them to analyse the glycosylation pattern.

There are three papers dealing with aspects of membrane fluidity. Parasassi and Gratton describe the use of two fluorescence probes (the well known DPH (1,6-diphenyl-1,3,5-hexatriene) and the less well known Laurdan (2-dimethylamino-6-lauroyl-naphthalene). The excitation spectrum of Laurdan is sensitive to the phase state of phospholipid so that it is possible to photoselect different populations of Laurdan molecules associated with the gel and liquid crystalline phases and hence

study bilayer microheterogeneity. Grimaldi et al. present a brief review of the use of fluorescence probes in membrane fusion and Morris et al. describe new data on viral envelope protein-induced cell fusion using low-light level fluorescence video microscopy.

The volume concludes with an overview by the editor which puts the papers into the clinical context. The volume is a useful record of the meeting although one might have expected the inclusion of some discussion comments. The book is very attractively produced on high quality paper and there is a brief subject index. Clinicians might regret the paucity of specific applications to the clinical situation but membrane scientists should find numerous papers to interest them.

M.N. Jones

Advances in Lectin Research; Volume 4; Edited by H. Franz; Springer-Verlag/Verlag Gesundheit; Berlin, 1991; 127 pages; DM 198.00

This volume of invited reviews contains four chapters; running to 110 pages; it definitely falls into the 'slim monograph' category of scientific publishing.

The potential purchaser should be warned at the outset that this is not a volume which caters to the general reader, who may have come across lectins as reagents in the study of cell surface glycoproteins, or as being involved in cell–cell interactions, and wants to know more about their structures, functions, and roles in vivo. Rather, it is aimed at the 'lectinologist' (an appalling coinage), who is already an expert, and wants to explore some fairly obscure nooks and crannies of his subject. The latter reader will find much to interest and stimulate him or her; the former reader will come away very little the wiser. 'Lectinologists', in the reviewer's experience, are much better at focussing on a very narrow area of specialisation than on considering wider issues, and thus do not communicate well with the scientific community at large. This is a shame, as the more interesting questions about these proteins — principally, what their biological roles are, and the inter-relationships between structure, sequence, and specificity — have been studied far less than they might have been, and most biologists/biochemists simply treat them as another useful reagent. Even so, the comment by the editor in his introduction that 'the functions of plant lectins are mostly unclear' cannot be allowed to pass without comment, when papers published recently have confirmed the roles of plant lectins in the interaction of legumes with *Rhizobia*, and in the defence of plants against insect predators, by the use of transgenic plants expressing 'foreign' lectin genes (*Nature*, 338,579; *Crop Protection*, 9,351).

In the present volume, the chapter by Uhlenbruck on *Tridacna* lectins is a competent review, but goes no further than that. Franz on mistletoe lectins ranges more widely, including the potential use of these toxic proteins as anticancer agents; however, this chapter is rather difficult to follow, and would benefit from being more clearly written. The meat of the book is in the chapter by Debray and Montreuil, on lectin affinity chromatography of glycoconjugates. This is a very thorough review, and contains a great deal of practically useful information. The final chapter, by Flemming, describes the kinetics of lectin-mediated cell agglutination, and while this is heavy going initially, the author's account of how the technique can be used for strain identification in microorganisms is interesting and provocative.

In conclusion, while there is a great proliferation in the publication of collections of highly specilised review articles of this sort, there seems to be little attempt to make them attractive to anyone other than the specialist. This volume is certainly no exception.

J.A. Gatehouse

Polypeptide and Protein Drugs; Edited by R.C. Hider and D. Barlowi; Ellis Horwood; New York, 1991; 281 pages; £45.00

The last decade has seen a rapid growth in the number of polypeptide and protein drugs available to the clinician for the treatment of diseases ranging from anaemia (erythropoetin) to cancer (interferons, interleukins). Despite the major influence that genetic engineering has had on the production of this class of pharmaceuticals, formidable problems still exist in their development and clinical use. This book, which is a compilation of the presentations given at the 1990 Easter School organised by the Royal Society of Chemistry and the Chelsea Department of Pharmacy, gives a comprehensive account of recent research in polypeptides and proteins, as it applies to their use as pharmaceuticals. The book starts with a discussion of protein structure and function and chapters follow on such topics as design and synthesis, recombinant DNA technology, testing, quality control and safety. The case histories presented on interleukin-2, human growth hormone and goserelin give a valuable insight into the development process and on how problems of large-scale production, purity, and formulation have been tackled. Although peptide drugs are becoming an increasingly valuable addition to therapy, there have been some obvious setbacks. For example, the vital importance of removing potentially harmful contaminants during the production process has been tragically brought to the fore by the case of the haemophiliacs groups who received factor VIII infected with HIV virus. The early hopes that human peptides of recombinant DNA origin would be superior to those prepared from animals have